

### Claims

What is Claimed is:

1. Process for producing a CED coating by cathodic electrodeposition of a  
5 coating on an electrically conductive substrate which comprises the following steps:
  - a. cathodically electrodepositing a CED coating film on a conductive substrate by immersing the substrate in a CED coating bath,
  - b. contacting the CED coating film on the substrate outside of the CED  
10 coating bath with an aqueous preparation of at least one metal compound; and
  - c. thermally crosslinking the CED coating film;wherein the at least one metal compound is a compound of a metal with an oxidation number of +2 or higher and is selected from the group  
15 consisting of compounds containing cations of the metal, compounds forming cations of the metal in aqueous medium, compounds containing cations containing the metal, compounds forming cations containing the metal in aqueous medium, compounds comprising outwardly neutral complexes of the metal, colloidal oxide of the metal and colloidal hydroxide of the metal; and  
20 wherein the metal itself is selected from the group consisting of metals having atomic numbers of 20 to 83 with the express exclusion of chromium, arsenic, cadmium, antimony, mercury, thallium and lead.
2. The process of claim 1, wherein the aqueous preparation is an  
25 aqueous solution or an aqueous colloidal solution.
3. The process of claim 1, wherein the at least one metal compound is contained in the aqueous preparation in a total quantity of 100 to 50,000 ppm metal.

4. The process of claim 1, wherein the at least one metal compound is a compound selected from the group consisting of titanium, vanadium, iron, zinc, yttrium, zirconium, tin, cerium, neodymium, and bismuth.
- 5 5. The process of claim 1, wherein the at least one metal compound is a metal complex compound or a metal salt of an inorganic or organic acid.
6. The process of claim 5, wherein the metal salt is a metal salt of an acid selected from the group consisting of hydrochloric acid, sulphuric acid, nitric acid, inorganic sulphonic acids, organic sulphonic acids, carboxylic acids, amino carboxylic acids and hydroxy carboxylic acids.
- 10
7. The process of claim 1, wherein the at least one metal compound is a metal salt selected from the group consisting of sulphuric acid salts of yttrium, nitric acid salts of yttrium, hydrochloric acid salts of yttrium, acetic acid salts of yttrium, formic acid salts of yttrium, hydrocarbyl sulphonic acid salts of yttrium, sulphuric acid salts of neodymium, nitric acid salts of neodymium, hydrochloric acid salts of neodymium, acetic acid salts of neodymium, formic acid salts of neodymium, hydrocarbyl sulphonic acid salts of neodymium, nitric acid salts of bismuth, acetic acid salts of bismuth, methoxy acetic acid salts of bismuth, amino carboxylic acid salts of bismuth, hydroxy carboxylic acid salts of bismuth and sulphonic acid salts of bismuth.
- 15
8. The process of claim 1, wherein the substrate provided with the non-cross-linked CED coating film is brought into contact with the aqueous preparation by dipping, spraying, rinsing or combinations thereof.
- 20
9. The process of claim 1, wherein contact is made in such a way that 0.1 to 2 % by weight of the metal originating from the at least one metal compound (calculated as metal), relative to the resin solid of the CED coating film, pass from the aqueous preparation onto and/or into the non-cross-linked CED coating film.
- 25
- 30

10. The process of claim 1, wherein the substrate provided with the still non-cross-linked CED coating film is connected as a cathode during contact with the aqueous preparation.
- 5 11. The process of claim 1, wherein the electrically conductive substrates are substrates selected from the group consisting of metallic substrates, automotive bodies and automotive body parts.
- 10 12. An electrically conductive substrate coated according to the process of claim 1.